



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

*Experiments at the naval hospital at Lorient.*

In the November, 1899, number of *Les Archives de Médecine Navale*, Doctors Du Bois, Saint-Sevrin, and Pélissier, physicians of the first class, French navy, published a report upon comparative experiments on disinfection made at the bacteriological laboratory of the naval hospital at Lorient by means of formic aldehyd (the Trillat autoclave and the Guasco apparatus) and sulphurous anhydrid.

The experiments were ordered by the minister of the navy, on the representations and request of the interested parties, the object being stated as an endeavor to find a process of disinfection "that gives the best guarantees for the smallest expense and at the same time causing the smallest danger from asphyxia, poisoning, or fire." The experimenters were directed to consider the following points:

First. Superficial disinfection.

Second. Deep disinfection.

(a) Of liquids.

(b) Of porous matters, as tissues, wool mattresses, etc., and the quantities necessary per meter cube to obtain the result stated.

Third. Time necessary to obtain sterilization of porous materials.

Fourth. Dangers from asphyxia, poisoning, and fire.

Fifth. Cost of each process.

The experiments with the Trillat autoclave were two in number, and briefly are as follows:

Hall 218 cubic meters (6,970 cubic feet) sealed by cotton and paper pasted over cracks.

Two and one-half liters of formo chloral were used and vapors entered hall during one hour and fifty minutes. After this, hall was kept closed for eight hours.

The objects exposed were—

1. Blocks of gelatin colored by fuchsine (cylindrical 15 mm. in diameter and 12 mm. high). Formalin renders gelatin insoluble and turns fuchsine violet.

2. Cultures of microbes.

3. Pathological products.

4. Dust.

5. Metals.

6. Coloring matter.

7. Tissues.

*Results.*—Gelatin blocks exposed freely all turned violet, became friable and insoluble. A test tube of colored gelatin loosely plugged with cotton showed changes to a depth of 2 c. c. Blocks in mattresses showed no changes.

*Cultures.*—Solid cultures were in thin layers in open Petri dishes, and of 5 specimens; but 1 was sterilized. The liquid ones were in watch glasses, being 4 to 5 mm. deep, and of 8 specimens, 7 grew within four days.

A piece of absorbent cotton dipped in a fresh bouillon culture and introduced inside of a mattress 20 c. c. thick was perfectly fertile. A specimen of anthrax spores dried on paper and sealed in an envelope was sterilized, but another folded in a single letter sheet sealed in an envelope remained fertile.

*Pathological products.*—Tubercular sputum dried in layers of 3 mm. thickness, inoculated into guinea pigs; 1 died, 2 others lost weight but finally recovered entirely.

*Dust*.—Exposed in layers 3 c. c. thick in Petri dishes was not sterilized.

*Metals*.—Various varieties, were exposed and suffered no change.

*Tissues*.—Including many varieties and colors, as well as leather, showed that tissues are not changed.

*Second experiment*.—Hall 128 cubic meters (4,311 cubic feet) arranged as first. One liter and 300 c. c. of formo-chloral employed. Autoclave operated one hour ten minutes, afterwards eight hours' exposure.

Various cultures were freely exposed on cloth or paper, and the majority found sterile when placed in bouillon without being neutralized by ammonia. It was shown that in 5 of these tubes 2 had received enough antiseptic with the specimen to prevent the growth of a fresh inoculation.

Inside of 4 mattresses, 20 cm. square, were placed respectively cultures of coli, friedlander, sarcina flavus, and anthrax. All were found fertile after exposure. As in the preceding test, anthrax spores sealed in an envelope were sterilized.

A piece of iron with a crack or groove 3 mm. wide and 7 mm. deep cut in it was sterilized, the crack filled with dust and infected with a bouillon culture of Asiatic cholera. After exposure the deeper layers of this dust gave cultures of the cholera bacillus.

Surface cultures of anthrax (containing spores) on Agar-agar, freely-exposed to the gas, were not killed.

The experiments on the Guasco apparatus or dissociator, as well as those with sulphurous anhydrid, described in the same article, can be now passed over, with the explanation that this lamp is based on the tendency of trioxymethelin 3 ( $\text{CH}_2\text{O}$ ) to dissociate and transform itself into formic aldehyd gas at a temperature of  $152^\circ \text{C}$ ., viz:  $\text{CH}_2\text{O} + \text{CH}_2\text{O} + \text{CH}_2\text{O}$ . I will, however, give almost literally the résumé, comparing the three systems.

First. The Guasco apparatus fulfills none of the conditions desired for a process of disinfection in toto of hospital wards or vessels of the navy, and offers no point of comparison with the Trillat apparatus and sulphurous anhydrid.

Second. That the Trillat apparatus and the process employing sulphurous anhydrid give results comparable in following points:

#### A. *Superficial sterilization.*

Trillat apparatus. Sterilizes mycelial germs and anthrax spores. Sulphurous anhydrid. Uncertain action on mycelial germs. No action on anthrax spores.

#### B. *Deep sterilization.*

A liquid media.

Trillat apparatus. No action.

Sulphurous anhydrid. Positive action on mycelial germs, none on spores.

b. Porous or pulverized matter.

Trillat apparatus. No action.

Sulphurous anhydrid. Uncertain action on mycelial germs, none on spores.

#### C. *Action on metals.*

Trillat apparatus. No harmful action upon metals used in the navy.

Sulphurous anhydrid. Oxidizing action upon metals used in the navy.

D. *Action on tissues and organic bodies.*

Trillat apparatus. Does not change tissues. Changes albuminoid bodies.

Sulphurous anhydrid. Changes the color of certain tissues.

E. *Time before rooms again habitable.*

Trillat apparatus. Twenty-four hours.

Sulphurous anhydrid. Forty-eight hours.

F. *Dangers of asphyxia, poisoning, and fire.*

Trillat apparatus. None on condition the apparatus is constantly watched by an experienced person. Sulphurous anhydrid. None with ordinary precautions.

The conclusions drawn are that none of these processes fulfill the conditions sought. However, formaldehyd gas is admitted to have a strong bactericidal power, especially in regard to tuberculous sputum. It is therefore to be recommended in disinfecting for tuberculosis, but in serious infection it should not be relied on as absolute, especially in regard to mattresses, clothing, and all porous substances.

*Formic aldehyd a surface disinfectant.*

The report of Dr. A. J. Martin, which was published in the Journal Officiel of June 23, 1899, was written in answer to the request of the minister of the interior asking recent information on the subject, and especially if the process had arrived at a state of perfection sufficient to allow its being employed in official disinfections.

The comité consultatif d'hygiène publique de France had already on June 7, 1897, promulgated the following decision on the subject :

"Formic aldehyd gas is a surface disinfectant ; it can penetrate with difficulty only, even when used in large amounts and during a time that has not yet been scientifically or practically determined. The disinfection as generally practiced, following as to time and amount the directions of the companies exploiting the various processes, is so far as this committee has experimented, insufficient, and therefore not efficacious."

Dr. Martin proceeds to review the literature and experiments both of France and abroad since this decision, in order to determine if a more favorable one can be rendered at the time of writing, nearly two years later.

The report is long, concise, and would be of great value to any one interested in the subject, but being a résumé or review, it can not be reviewed. Suffice it to say that many processes are taken up from that of Schering-Aronson, using the pastilles of the polymerized products of formaldehyd, to the more recent methods including the projection of gas (1 to 2 liters of solution for 10 cubic meters) into a hot chamber (40° C) in which a vacuum has been previously created, and the form-acétone process, a sketch of which has been given in a previous report.

The same difficulty constantly arises in each method and is insisted upon, namely, that the gas from its chemical nature can not penetrate to any depth a porous or fibrous body because whenever it comes in intimate contact with any such body it changes its form and polymerizes into an inert solid. So at the end of this review the former decision of the "Comité Consultatif" is repeated with the statement that for the present there is no reason why it should be changed, and he adds: "The

processes proposed up to the present time do not fulfill the practical requirements of public disinfection."

"In any case the use of formic aldehyd can not do away with the necessity of sending to the steam chamber linen, clothes, mattresses, carpets, and all other objects that should be disinfected by being submitted to the action of steam under pressure." So we see the question is by no means settled in this country, although having arrived at diametrically opposite results each party seems to be convinced that it is in the right and each is largely resting on its arms.

In closing, it might be interesting to note that some weeks ago in a lecture at the Pasteur Institute on the subject of disinfectants, Professor Roux said in substance :

"Formaldehyd gas, while having slight penetrating power is, when properly employed, a practically perfect surface disinfectant, and in a room denuded of fabrics, etc., this is all we require. In all cases it is far superior to the method now employed by the municipal authorities, namely, that of using a fine spray of a solution of bichloride.

It has been shown that the spaces on the walls, etc., between the various particles of the solution thus projected are, compared with the size of a bacillus, simply enormous, so such a process can have absolutely no disinfecting power."

*Marseilles quarantines against Cape Town on account of plague.*

PARIS, February 15, 1901.

SIR: I have the honor to report that a circular has been issued by the minister of the interior to the sanitary authorities at the port of Marseilles, directing them to consider Cape Town and neighboring ports as infected with plague, and to put in force all the precautionary measures prescribed by the regulations for vessels coming from these ports.

Respectfully,

S. B. GRUBBS,

*Assistant Surgeon, U. S. M. H. S.*

The SURGEON-GENERAL,

*U. S. Marine-Hospital Service.*

GERMANY.

*Report from Berlin—Plague and cholera news.*

BERLIN, GERMANY, February 2, 1901.

SIR: I have the honor to submit the following information obtained from the imperial health office.

\* \* \* \* \*

EGYPT.—A case of plague occurred on the steamer *Senegal* of the Messageries Maritimes, which arrived in Alexandria from Smyrna and Beirut on January 11. After undergoing the prescribed disinfection the steamer was placed under quarantine, but on the evening of January 11 proceeded to Marseilles. The sick man, as well as those travelers whose destination was Egypt, were conveyed to the quarantine hospital.

BRITISH EAST INDIA.—In the city of Bombay, during the week ended December 15, 112 new cases of plague were reported. Of the 826 deaths during this week and the 913 deaths in the week ended December 22, inclusive of those dying of suspected plague, 285 and 343, respectively, resulted from plague. Eighty-one and 111, respectively, of these are demonstrated to be deaths from plague, that is to say more than reported in the two previous weeks.